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 USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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L153 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2010 ACS ON STN

AN 2007:1277956 HCAPLUS Full-text

DN 147:525343

TI Nonaqueous electrolyte solution and secondary nonaqueous electrolyte battery

IN Fujii, Takashi; Shima, Noriko; Ohashi, Youichi; Kinoshita, Shinichi

PA Mitsubishi Chemical Corporation, Japan

SO PCT Int. Appl., 241 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	WO 2007126068	A1	20071108	WO 2007-JP59207	20070427
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW,			

GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM

JP 2007299541	A	20071115	JP 2006-124042	20060427
JP 2007299542	A	20071115	JP 2006-124044	20060427
JP 2007299543	A	20071115	JP 2006-124045	20060427
JP 2007317654	A	20071206	JP 2007-118487	20070427
JP 2007317655	A	20071206	JP 2007-118488	20070427
EP 2012386	A1	20090107	EP 2007-742642	20070427

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LI, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR,  
 AL, BA, HR, MK, RS

CN 101432923	A	20090513	CN 2007-80015008	20081027
KR 2008111139	A	20081222	KR 2008-728011	20081117
US 20090325065	A1	20091231	US 2009-298440	20090211

FRAT JP 2006-124041 A 20060427  
 JP 2006-124042 A 20060427  
 JP 2006-124043 A 20060427  
 JP 2006-124044 A 20060427  
 JP 2006-124045 A 20060427  
 WO 2007-JP59207 W 20070427

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The battery has a Li-intercalating anode containing an anode active mass which comprises ≥1 atom selected from Si, Sn and Pb, and an electrolyte solution; where the electrolyte solution contains a carbonate containing an unsatd. bond and/or a halogen atom, and at least one compound selected from compds. (A), (B), (C), (D) and (E) specified in the description.

IPCI H01M0010-36 [I,A]; H01M0004-04 [I,A]; H01M0004-40 [I,A]  
 IPCR H01M0004-02 [I,C\*]; H01M0004-04 [I,C\*]; H01M0004-40 [I,C]; H01M0004-40 [I,A]; H01M0004-58 [I,C\*]; H01M0004-58 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT Battery anodes  
 Battery electrolytes  
 (electrolyte solns. containing carbonates and additives for secondary lithium batteries)

IT Secondary batteries  
 (lithium; electrolyte solns. containing carbonates and additives for secondary lithium batteries)

IT 55-98-1, Busulfan 66-27-3, Methyl methane sulfonate 67-68-5, Dimethyl sulfoxide, uses 67-71-0, Dimethyl sulfone 75-18-3, Dimethyl sulfide 85-44-9, Phthalic anhydride 92-06-8, 1,3-Diphenyl benzene 92-52-4, Biphenyl, uses 98-06-6, (1,1-Dimethyl ethyl) benzene 108-30-5, Succinic anhydride, uses 108-31-6, Maleic anhydride, uses 127-63-9, Diphenyl sulfone 139-66-2, Diphenyl sulfide 462-06-6, Fluorobenzene 544-40-1, Dibutyl sulfide 629-45-8, Dibutyl disulfide 699-30-9 756-79-6, Dimethyl methyl phosphonate 791-28-6, Triphenyl phosphine oxide 814-29-9, Tributyl phosphine oxide 827-52-1, Cyclohexyl benzene 882-33-7, Diphenyl disulfide 945-51-7, Diphenyl sulfoxide 1667-08-9 1717-82-4, 1-Cyclohexyl 2-fluorobenzene 1717-84-6, 1-Cyclohexyl 4-fluorobenzene 1973-15-5 2170-03-8, Itaconic anhydride 2240-41-7, Dimethyl phenyl phosphonate 3561-67-9, Bis(phenyl thio) methane 4480-83-5, Diglycolic anhydride 4775-09-1, Ethyl diethyl phosphinate 16156-59-5, Phenyl methane sulfonate 25236-64-0, 2,2,2-Trifluoroethyl methane sulfonate 33454-82-9, Lithium trifluoromethane sulfonate 90076-65-6 117186-54-6 132404-42-3 132843-44-8 390750-44-4 409071-16-5 412030-34-3 521065-36-1

RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing carbonates and additives for secondary lithium batteries)

IT 56-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 872-36-6, Vinylene carbonate 4427-96-7,

Vinyl ethylene carbonate 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)  
 21324-40-3, Lithium hexafluorophosphate 114435-02-8,  
 Fluoroethylene carbonate 918298-87-0, Carbon 12, copper 8.1, silicon 73  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrolyte solns. containing carbonates and additives for secondary  
 lithium batteries)

IT 98-06-6, (1,1-Dimethyl ethyl) benzene 827-52-1,  
 Cyclohexyl benzene 1717-82-4, 1-Cyclohexyl 2-fluorobenzene  
 1717-84-6, 1-Cyclohexyl 4-fluorobenzene  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing carbonates and additives for secondary  
 lithium batteries)  
 RN 98-06-6 HCAPLUS  
 CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



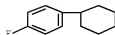
RN 827-52-1 HCAPLUS  
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 1717-82-4 HCAPLUS  
 CN Benzene, 1-cyclohexyl-2-fluoro- (CA INDEX NAME)



RN 1717-84-6 HCAPLUS  
 CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



IT 98-49-1, Ethylene carbonate 105-58-8, Diethyl  
 carbonate 872-36-6, Vinylene carbonate 3421-96-7,  
 Vinyl ethylene carbonate 114435-02-8, Fluoroethylene carbonate  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (electrolyte solns. containing carbonates and additives for secondary

lithium batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



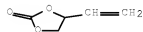
RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 4427-96-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-ethenyl- (CA INDEX NAME)



RN 114435-02-8 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-fluoro- (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWK)	Referenced File
	(RPY)	(RVL)	(RPG)		
Asahi Chemical Industry	1990			JJP 02-244565 A	HCAPLUS
Kao Corp	1998			JJP 10-223257 A	HCAPLUS
Mitsubishi Chemical Cor	2003			JEP 1357628 A1	HCAPLUS
Mitsubishi Chemical Cor	2003			IWO 2002056408 A1	
Mitsubishi Chemical Cor	2003			JJP 2003173819 A	HCAPLUS
Mitsubishi Chemical Cor	2003			IUS 2006172201 A	HCAPLUS
Samsung Electronics Co	1999			JJP 11-135148 A	HCAPLUS
Samsung Electronics Co	1999			IUS 6117596 A	HCAPLUS
Samsung Sdi Co Ltd	2004			IUS 2004142246 A	

Samsung Sdi Co Ltd	2004		JJP 2004221085 A	HCAPLUS
Samsung Sdi Co Ltd	2005		US 2005277027 A	
Samsung Sdi Co Ltd	2005		JJP 2005347240 A	HCAPLUS
Samsung Sdi Co Ltd	2006		US 2006078792 A	
Samsung Sdi Co Ltd	2006		JJP 2006108100 A	HCAPLUS
Sony Corp	2002		JJP 2002270230 A	HCAPLUS

L153 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2010 ACS ON STN

AN 2005:732891 HCAPLUS Full-text

DN 143:214335

TI Nonaqueous electrolyte solution, secondary lithium battery, and operation of the battery

IN Abe, Koji

PA Obe Industries, Ltd., Japan

SO PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
P1	WO 2005074067	A1	20050811	WO 2005-JP1424	20050201
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2555192	A1	20050811	CA 2005-2555192	20050201
	CN 1938894	A	20070328	CN 2005-80010139	20050201
	US 20070148554	A1	20070628	US 2006-588063	20060801
	KR 2006129042	A	20061214	KR 2006-717663	20060831
	IN 2006CN03177	A	20070608	IN 2006-CN3177	20060901
PRRI	JP 2004-25834	A	20040202		
	WO 2005-JP1424	W	20050201		

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The electrolyte solution has an electrolyte dissolved in a nonaq. solvent and contains 1-10% cyclohexylbenzene derivative with halogenated benzene rings and 0.1-5% fluorobenzene derivative. The battery uses the above electrolyte solution containing several cyclic carbonates as electrolyte solution. The battery is operated with a maximum operational voltage  $\geq 4.2$  V.

IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C\*]

IPCR H01M0006-16 [N,C\*]; H01M0006-16 [N,A]; H01M0010-36 [I,C\*]; H01M0010-36 [I,A]; H01M0010-42 [I,C\*]; H01M0010-42 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes

(electrolyte solns. containing halogenated cyclohexylbenzene and fluorobenzene derivs. for secondary lithium batteries)

IT Secondary batteries

(lithium; secondary lithium batteries with electrolyte solns. containing halogenated cyclohexylbenzene and fluorobenzene derivs. and their operation method)

IT 96-49-1, Ethylene carbonate 615-52-1 623-53-0,

Methyl ethyl carbonate 872-36-6, Vinylene carbonate

1120-71-4, 1,3-Propanesultone 21324-40-3, Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing halogenated cyclohexylbenzene and fluorobenzene derivs. for secondary lithium batteries)

IT 452-10-8, 2,4-Difluoroanisole 462-06-6, Fluorobenzene  
1717-84-6

RL: MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing halogenated cyclohexylbenzene and fluorobenzene derivs. for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl  
carbonate 972-36-6, Vinylene carbonate

RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing halogenated cyclohexylbenzene and fluorobenzene derivs. for secondary lithium batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)

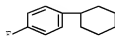


IT 1717-84-6

RL: MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing halogenated cyclohexylbenzene and fluorobenzene derivs. for secondary lithium batteries)

RN 1717-84-6 HCAPLUS

CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



# RETABE

Referenced Author (RAU)	Year   VOL   PG (RPY)   (RVL)   (RPG)	Referenced Work (RWK)	Referenced File
Hitachi Maxell Ltd	1998	JP 10-112335 A	HCAPLUS

Mitsubishi Chemical Cor|2003 | | JJP 2003317803 A |HCAPLUS  
 Mitsubishi Chemical Cor|2004 | | |WO 2003077350 A1 |  
 Mitsubishi Chemical Cor|2004 | | JJP 2004139963 A |HCAPLUS  
 Mitsui Chemicals Inc |1999 | | JJP 11-329496 A |HCAPLUS  
 OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L153 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2010 ACS ON STN

AN 2005:451712 HCAPLUS Full-text

DN 143:10534

TI Nonaqueous electrolyte solution and secondary lithium battery

IN Abe, Koji; Rattori, Takashi; Matsumori, Yasuo

PA Ube Industries, Ltd., Japan

SO PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005048391	A1	20050526	WO 2004-JP16749	20041111
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2545791	A1	20050526	CA 2004-2545791	20041111
	EP 1691441	A1	20060816	EP 2004-818499	20041111
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR, IS, YU				
	CN 1906794	A	20070131	CN 2004-80040412	20041111
	CN 100459274	C	20090204		
	US 20070082271	A1	20070412	US 2006-579249	20060512
	ZA 2006004773	A	20070328	ZA 2006-4773	20060609
	KR 2006121173	A	20061128	KR 2006-711531	20060612
	IN 2006CN02096	A	20070706	IN 2006-CN2096	20060613
PPAI	JP 2003-383404	A	20031113		
	JP 2004-25833	A	20040202		
	WO 2004-JP16749	W	20041111		

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The electrolyte solution has an electrolyte salt dissolved in a nonaq. solvent, containing a cyclic carbonate compound, a linear carbonate compound, and a cyclohexyl benzene compound having 1 or 2 halo atoms bonded to a benzene ring; where the volume ratio of the cyclic carbonate compound to the linear carbonate compound in the nonaq. solvent is 20-40:60-80, or the solvent further contains a small amount of a branched alkylbenzene compound. The battery has a cathode, an anode, and the above electrolyte solution.

IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C\*]

IPCR H01M0004-02 [N,C\*]; H01M0010-36 [I,C\*]; H01M0010-36 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes

(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)

- IT Secondary batteries  
(lithium; electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
- IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl carbonate 872-36-6, Vinylene carbonate 21324-40-3, Lithium hexafluorophosphate  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
- IT 98-06-6, tert-Butyl benzene 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 827-52-1, Cyclohexyl benzene 1717-82-4 1717-83-5 1717-84-6 2049-95-8, tert-Pentyl benzene 852333-52-9  
RL: MOA (Modifier or additive use); USES (Uses)  
(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
- IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl carbonate 872-36-6, Vinylene carbonate  
RL: DEV (Device component use); USES (Uses)  
(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)
- RN 96-49-1 HCAPLUS  
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 623-53-0 HCAPLUS  
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



- RN 872-36-6 HCAPLUS  
CN 1,3-Dioxol-2-one (CA INDEX NAME)



- IT 98-06-6, tert-Butyl benzene 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 827-52-1, Cyclohexyl benzene 1717-82-4 1717-83-5 1717-84-6 2049-95-8, tert-Pentyl benzene 852333-52-9  
RL: MOA (Modifier or additive use); USES (Uses)



(electrolyte solns. containing cyclic carbonate compds., linear carbonate compds. and cyclohexyl benzene compds. for secondary lithium batteries)

RN 98-06-6 HCAPLUS

CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 616-38-6 HCAPLUS

CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 1717-82-4 HCAPLUS

CN Benzene, 1-cyclohexyl-2-fluoro- (CA INDEX NAME)

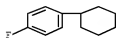


RN 1717-83-5 HCAPLUS

CN Benzene, 1-cyclohexyl-3-fluoro- (CA INDEX NAME)



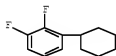
RN 1717-84-6 HCAPLUS  
 CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 2049-95-8 HCAPLUS  
 CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



RN 852333-52-9 HCAPLUS  
 CN Benzene, 1-cyclohexyl-2,3-difluoro- (CA INDEX NAME)



RETABLE						
Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RPY)   (RVL)   (RPG)   (RWK)	Referenced File	
Hitachi Maxell Ltd	2003			JP 2003109660 A	HCAPLUS	
Japan Storage Battery C	2003			JP 2003308875 A	HCAPLUS	
Mitsubishi Chemical Cor	2003			JP 2003317803 A	HCAPLUS	
Mitsubishi Chemical Cor	2004			JP 2004349131 A	HCAPLUS	
Mitsubishi Chemical Cor	2004			JP 2004349132 A	HCAPLUS	
Sanyo Electric Co Ltd	2001			EP 1065744 A2	HCAPLUS	
Sanyo Electric Co Ltd	2001			CN 1279520 A	HCAPLUS	
Sanyo Electric Co Ltd	2001			JP 2001015155 A	HCAPLUS	
Sanyo Electric Co Ltd	2001			US 6632572 B1	HCAPLUS	
Ube Industries Ltd	2002			EP 1324417 A1	HCAPLUS	
Ube Industries Ltd	2002			WO 2002029922 A1		
Ube Industries Ltd	2002			US 200428996 A1		
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)						

L153 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN  
 AN 2005:283755 HCAPLUS [Full-text](#)

DN 142:358035  
 TI Nonaqueous electrolyte solution and secondary lithium battery  
 using the solution  
 IN Abe, Koji; Kuwata, Takaaki  
 PA Gbs Industries, Ltd., Japan  
 SO PCT Int. Appl., 26 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005029631	A1	20050331	WO 2004-JP13687	20040917
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	EP 1672729	A1	20060621	EP 2004-773306	20040917
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR			
	CN 1864299	A	20061115	CN 2004-80026823	20040917
	CN 100481604	C	20090422		
	KR 2006076304	A	20060704	KR 2006-705312	20060316
	US 2007054185	A1	20070308	US 2006-572571	20060317
	US 7261975	B2	20070828		
EP AI	JP 2003-324100	A	20030917		
	WO 2004-JP13687	W	20040917		

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The electrolyte solution has an electrolyte salt dissolved in a nonaq. solvent; where the electrolyte solution further contains a pentafluorophenyl compound C6F5-OR1 (R1 = substituent selected from C2-12 alkyl carbonyl, C7-18 aryloxy carbonyl and/or C1-12 alkane sulfonyl group; and at least one H atom of the substituent may be substituted by a halogen atom or an C6-18 aryl group) and a vinylene carbonate and/or 1,3-propane sultone. The battery has a cathode, an anode, and the above electrolyte solution.

IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C\*]  
 IPCR C07C0309-00 [I,C\*]; C07C0309-66 [I,A]; H01M0006-16 [N,C\*]; H01M0006-16 [N,A]; H01M0010-36 [I,C\*]; H01M0010-36 [N,A]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT Battery electrolytes  
 (electrolyte solns. containing pentafluorophenyl compounds for secondary lithium batteries)  
 IT Secondary batteries  
 (lithium; electrolyte solns. containing pentafluorophenyl compounds for secondary lithium batteries)  
 IT 96-49-1, Ethylene carbonate 198-32-7, Propylene carbonate 623-53-0, Methyl ethyl carbonate 7782-42-5, Graphite, uses 12057-17-9, Lithium manganese oxide (LiMn2O4) 12190-79-3, Cobalt lithium oxide (CoLiO2) 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing pentafluorophenyl compounds for secondary

lithium batteries)

IT 96-48-0 827-52-1, Cyclohexyl benzene 872-36-6,  
 Vinylene carbonate 1120-71-4, 1,3-Propane sultone 1717-84-6  
 2049-95-8, tert-Pentyl benzene 5129-37-3, Butyl pivalate  
 19220-93-0, Pentafluorophenyl acetate 36919-03-6, Methyl  
 pentafluorophenyl carbonate 71573-77-8, Dipropargyl oxalate  
 161912-36-3

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte solns. containing pentafluorophenyloxy compds. for secondary  
 lithium batteries)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene  
 carbonate 623-53-0, Methyl ethyl carbonate

RL: DEV (Device component use); USES (Uses)

(electrolyte solns. containing pentafluorophenyloxy compds. for secondary  
 lithium batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



IT 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene  
 carbonate 1717-84-6 2049-95-8, tert-Pentyl benzene

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte solns. containing pentafluorophenyloxy compds. for secondary  
 lithium batteries)

RN 827-52-1 HCAPLUS

CN Benzene, cyclohexyl- (CA INDEX NAME)

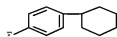


RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 1717-84-6 HCAPLUS  
 CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 2049-95-8 HCAPLUS  
 CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Mitsui Chemicals Inc	1999			JP 11-329496 A	HCAPLUS
Sony Corp	1997			JP 09-050822 A	HCAPLUS
Sony Corp	2000			JP 2000156243 A	HCAPLUS
Toyota Central Research	2000			JP 2000323169 A	HCAPLUS
Ube Industries Ltd	1999			JP 11-329490 A	HCAPLUS
Ube Industries Ltd	2000			JP 2000003724 A	HCAPLUS
Ube Industries Ltd	2000			US 6033809 A	HCAPLUS
Ube Industries Ltd	2003			WO 03077351 A1	HCAPLUS
Ube Industries Ltd	2003			JP 2003272700 A	HCAPLUS

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L153 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:76450 HCAPLUS Full-text

DN 142:180441

TI Nonaqueous electrolyte solution for secondary lithium battery  
 and the battery

IN Abe, Koji; Miyoshi, Kazuhiro; Kuwata, Takaaki

PA Ube Industries, Ltd., Japan

SO PCT Int. Appl., 48 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005008829	A1	20050127	WO 2004-JP10194	20040716

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
 LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,  
 NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,  
 TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,  
 SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
 SN, TD, TG

CA 2532579	A1	20050127	CA 2004-2532579	20040716
EP 1650826	A1	20060426	EP 2004-747660	20040716
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
CN 1853307	A	20061025	CN 2004-80026556	20040716
CN 100517853	C	20090722		
ZA 2006000431	A	20070425	ZA 2006-431	20060116
KR 2006035767	A	20060426	KR 2006-701080	20060117
US 20060177742	A1	20060810	US 2006-564852	20060117
IN 2007CN04612	A	20080328	IN 2007-CN4612	20071016
PRAI JP 2003-198421	A	20030717		
JP 2003-383403	A	20031113		
WO 2004-JP10194	W	20040716		
IN 2006-CN200	A3	20060116		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OS MARPAT 142:180441

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The electrolyte solution contains 0.01-10% vinyl carbonate compound I (R1 and R2 = H or C1-4 alkyl groups) and 0.01-10% alkyne compds. selected from II-VII (R's and Y's defined; and x and p = 1 or 2).

IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C\*]; H01M0004-02 [ICS,7];  
 H01M0004-58 [ICS,7] <--

IPCR H01M0004-02 [N,C\*]; H01M0004-50 [N,C\*]; H01M0004-50 [N,A]; H01M0004-52 [N,C\*]; H01M0004-52 [N,A]; H01M0004-58 [N,C\*]; H01M0004-58 [N,A]; H01M0010-36 [I,C\*]; H01M0010-36 [I,A]; H01M0010-42 [N,C\*]; H01M0010-42 [N,A] <--

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.  
 for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene  
 carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3,  
 Lithium hexafluorophosphate 90076-65-6

RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.  
 for secondary lithium batteries)

IT 98-06-6, tert-Butylbenzene 452-10-8, 2,4-Difluoroanisole  
 462-06-6, Fluorobenzene 536-74-3, Phenylacetylene 827-52-1,  
 Cyclohexylbenzene 872-36-6, Vinylene carbonate 1072-53-3,  
 Ethylene sulfate 1120-71-4, 1,3-Propanesultone 1717-84-6  
 2049-53-8, tert-Amylbenzene 16156-58-4, 2-Propynyl  
 methanesulfonate 32042-39-0 36677-73-3 61764-71-4  
 71573-77-8, Di(2-propynyl) oxalate 79493-91-7, Dipropargyl  
 carbonate 131166-79-5 197244-15-8 347396-84-3

406725-07-3 833427-83-1

RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.  
 for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene  
 carbonate 623-53-0, Ethyl methyl carbonate

RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.  
 for secondary lithium batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



IT 98-06-6, tert-Butylbenzene 827-52-1,  
 Cyclohexylbenzene 872-36-6, Vinylene carbonate

1717-04-6 2049-95-8, tert-Amylbenzene

61764-71-4 79493-91-7, Dipropargyl carbonate

197244-15-8 406725-07-3

RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.  
 for secondary lithium batteries)

RN 98-06-6 HCAPLUS

CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 827-52-1 HCAPLUS

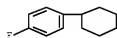
CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCAPLUS  
CN 1,3-Dioxol-2-one (CA INDEX NAME)



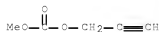
RN 1717-84-6 HCAPLUS  
CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 2049-95-8 HCAPLUS  
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



RN 61764-71-4 HCAPLUS  
CN Carbonic acid, methyl 2-propyn-1-yl ester (CA INDEX NAME)



RN 79493-91-7 HCAPLUS  
CN 2-Propyn-1-ol, 1,1'-carbonate (CA INDEX NAME)



RN 197244-15-8 HCAPLUS  
CN Carbonic acid, C,C'-2-butyne-1,4-diyl C,C'-dimethyl ester (CA INDEX NAME)





RN 406725-07-3 HCAPLUS

CN Carbonic acid, 2,4-hexadiyne-1,6-diyl dimethyl ester (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Matsushita Electric Ind	2003			JP 2003142075 A	HCAPLUS
Mitsubishi Chemical Cor	2004			JP 2004265848 A	HCAPLUS
Mitsui Chemicals Inc	2002			JP 2002343426 A	HCAPLUS
Ube Industries Ltd	2000			JP 2000195545 A	HCAPLUS
Ube Industries Ltd	2001			CN 1277468 A	HCAPLUS
Ube Industries Ltd	2001			JP 2001043895 A	HCAPLUS
Ube Industries Ltd	2002			JP 2002124297 A	HCAPLUS
Ube Industries Ltd	2003			JP 2003059529 A	HCAPLUS

L153 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2004:1060383 HCAPLUS Full-text

DN 142:41515

TI Nonaqueous electrolyte solution and secondary battery which uses the solution

IN Takehara, Masahiro; Shima, Kunihiisa

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 17 pp.

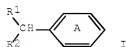
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004349132	A	20041209	JP 2003-145312	20030522
	JP 4283594	B2	20090624		
EP/JP	JP 2003-145312		20030522		
OS	MARPAT 142:41515				
GI					



AB The electrolyte solution has a Li salt dissolved in a solvent mixture; where the electrolyte solution contains an aromatic compound of the formula I [R1, R2 = (substituted) alkyl group or R1 and R2 may bond with each other to form

a ring; and the C6H5 ring has an electron-withdrawing substituent in the para-position to the R1R2CH group and other positions may also have a substituent]. The battery has an anode, containing a 1st Li-intercalating material such as Li or a Li alloy; a cathode, containing a 2nd Li-intercalating material, and the above electrolyte solution.

IPCI H01M0010-36 [I,A]; H01M0004-38 [I,A]; H01M0004-40 [I,A]; H01M0004-58 [I,A]  
 IPCR H01M0004-02 [I,A]; H01M0004-02 [I,C\*]; H01M0004-38 [I,A]; H01M0004-38 [I,C\*]; H01M0004-40 [I,A]; H01M0004-40 [I,C\*]; H01M0004-58 [I,A]; H01M0004-58 [I,C\*]; H01M0010-36 [I,C\*]; H01M0010-40 [I,A]; H01M0010-36 [I,A]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT Secondary batteries  
     (lithium; nonaq. electrolyte solns. containing aromatic compds. for secondary lithium batteries)  
 IT Battery electrolytes  
     (nonaq. electrolyte solns. containing aromatic compds. for secondary lithium batteries)  
 IT 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO2) 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate  
 RL: DEV (Device component use); USES (Uses)  
     (nonaq. electrolyte solns. containing aromatic compds. for secondary lithium batteries)  
 IT 829-32-3, 1-Chloro-4-cyclohexyl benzene 872-36-6, Vinylene carbonate 1717-84-6, 1-Cyclohexyl-4-fluorobenzene 807335-69-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
     (nonaq. electrolyte solns. containing aromatic compds. for secondary lithium batteries)  
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
 RL: DEV (Device component use); USES (Uses)  
     (nonaq. electrolyte solns. containing aromatic compds. for secondary lithium batteries)  
 RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)

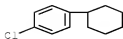


RN 105-58-8 HCAPLUS  
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



IT 829-32-3, 1-Chloro-4-cyclohexyl benzene 872-36-6, Vinylene carbonate 1717-84-6, 1-Cyclohexyl-4-fluorobenzene  
 RL: MOA (Modifier or additive use); USES (Uses)  
     (nonaq. electrolyte solns. containing aromatic compds. for secondary lithium batteries)  
 RN 829-32-3 HCAPLUS

CN Benzene, 1-chloro-4-cyclohexyl- (CA INDEX NAME)



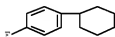
RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 1717-84-6 HCAPLUS

CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L153 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2004:1058778 HCAPLUS [Full-text](#)

DN 142:41483

TI Nonaqueous electrolytic solution containing aromatic compounds and its use in secondary lithium battery

IN Takehara, Masahiro; Shima, Kunihi

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004349131	A	20041209	JP 2003-145311	20030522
	JP 4283593	B2	20090624		
PRAT	JP 2003-145311		20030522		

OS MARPAT 142:41483

AB The solution contains Li salts dissolved in nonaq. solvents containing R1CR2HA [R1, R2 = (un)substituted alkyl; R1 and R2 may be bonded to form (un)substituted hydrocarbon ring; A = substituted Ph; ≥1 of C on m-position to R1CR2H in A has substituted group]. The battery using the solution has high charge-discharge efficiency, capacity retention, energy d., and safety in wide temperature region.

IPCI H01M0010-36 [I,A]; H01M0004-38 [I,A]; H01M0004-40 [I,A]; H01M0004-58 [I,A]

IPCR H01M0004-02 [I,A]; H01M0004-02 [I,C\*]; H01M0004-38 [I,A]; H01M0004-38 [I,C\*]; H01M0004-40 [I,A]; H01M0004-40 [I,C\*]; H01M0004-58 [I,A]; H01M0004-58 [I,C\*]; H01M0010-36 [I,C\*]; H01M0010-40 [I,A]; H01M0010-36 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Secondary batteries  
(lithium; nonaq. electrolytic solution containing specific benzene derivs.  
For overcharging prevention in Li battery)

IT Battery electrolytes  
(nonaq. electrolytic solution containing specific benzene derivs. for  
overcharging prevention in Li battery)

IT 7429-90-5D, Aluminum, compds. 7440-21-3D, Silicon, compds. 7440-31-5D,  
Tin, compds. 7440-56-4D, Germanium, compds. 7782-42-5, KS 44, uses  
RL: DEV (Device component use); USES (Uses)  
(anode containing; nonaq. electrolytic solution containing specific benzene  
derivs. for overcharging prevention in Li battery)

IT 110-83-8, Cyclohexene, reactions 615-37-2, 1-Iodo-2-methylbenzene  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(benzene derivs. from; nonaq. electrolytic solution containing specific  
benzene derivs. for overcharging prevention in Li battery)

IT 12190-79-3, Cobalt lithium oxide (LiCoO<sub>2</sub>) 12737-30-3, Cobalt nickel  
oxide 51845-85-3, Cobalt manganese oxide  
RL: DEV (Device component use); USES (Uses)  
(cathode containing; nonaq. electrolytic solution containing specific  
benzene derivs. for overcharging prevention in Li battery)

IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium  
hexafluorophosphate  
RL: DEV (Device component use); USES (Uses)  
(electrolyte; nonaq. electrolytic solution containing specific benzene  
derivs. for overcharging prevention in Li battery)

IT 872-36-6, Vinylene carbonate  
RL: DEV (Device component use); USES (Uses)  
(film former, solution containing; nonaq. electrolytic solution containing  
specific benzene derivs. for overcharging prevention in Li battery)

IT 1717-82-4P, 1-Cyclohexyl-2-fluorobenzene 4501-35-3P  
91766-85-7P  
RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
(Modifier or additive use); PREP (Preparation); USES (Uses)  
(nonaq. electrolytic solution containing specific benzene derivs. for  
overcharging prevention in Li battery)

IT 803745-27-9  
RL: DEV (Device component use); MOA (Modifier or additive use); USES  
(Uses)  
(nonaq. electrolytic solution containing specific benzene derivs. for  
overcharging prevention in Li battery)

IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate  
105-58-8, Diethyl carbonate 108-29-2, γ-Valerolactone  
108-32-7, Propylene carbonate 542-28-9, δ-Valerolactone  
616-38-6, Dimethyl carbonate 623-53-8, Ethyl methyl  
carbonate 4437-85-8, Butylene carbonate  
RL: DEV (Device component use); USES (Uses)  
(solvent; nonaq. electrolytic solution containing specific benzene derivs.  
for overcharging prevention in Li battery)

IT 872-36-6, Vinylene carbonate  
RL: DEV (Device component use); USES (Uses)  
(film former, solution containing; nonaq. electrolytic solution containing  
specific benzene derivs. for overcharging prevention in Li battery)

RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



IT 1717-82-4P, 1-Cyclohexyl-2-fluorobenzene 91766-85-7P  
 RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
 (Modifier or additive use); PREP (Preparation); USES (Uses)  
 (nonaq. electrolytic solution containing specific benzene derivs. for  
 overcharging prevention in Li battery)  
 RN 1717-82-4 HCAPLUS  
 CN Benzene, 1-cyclohexyl-2-fluoro- (CA INDEX NAME)



RN 91766-85-7 HCAPLUS  
 CN Benzene, 1-chloro-2-cyclohexyl- (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl  
 carbonate 108-32-7, Propylene carbonate 616-38-6,  
 Dimethyl carbonate 623-53-0, Ethyl methyl carbonate  
 4437-85-8, Butylene carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (solvent; nonaq. electrolytic solution containing specific benzene derivs.  
 for overcharging prevention in Li battery)  
 RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS  
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS  
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS  
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 4437-85-8 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-ethyl- (CA INDEX NAME)



OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L153 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2004:159983 HCAPLUS Full-text

DN 140:202414

TI Secondary lithium battery, nonaqueous electrolyte, and method  
 for ensuring battery safety

IN Abe, Hiroshi; Miyoshi, Kazuhiro; Kuwata, Takaaki; Matsumori, Yasuo

PA Ube Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2004063367	A	20040226	JP 2002-222509	20020731
	JP 4374833	B2	20091202		
PRA1	JP 2002-222509		20020731		

AB The battery uses a Ni or Co containing Li multiple oxide, a Li (alloy) or Li intercalating anode, and a nonaq. electrolyte solution; where the electrolyte solution contains an organic compound which decomp. to deposit a coating layer on the active Li surface, during overcharge of the battery, to ensure the battery safety. Preferably, the compound has an redox. potential 4.6.apprx.5.2 V vs. Li, and is a ketone selected from menthone, isomenthone,

camphor, nopinone, and fenchone and may be mixed with a cyclohexylbenzene derivative. The electrolyte solution contains the compound.

- IPCI H01M0010-36 [I,A]  
 IPCR H01M0004-02 [I,A]; H01M0004-02 [I,C\*]; H01M0004-40 [I,A]; H01M0004-40 [I,C\*]; H01M0004-58 [I,A]; H01M0004-58 [I,C\*]; H01M0010-36 [I,C\*]; H01M0010-40 [I,A]; H01M0010-36 [I,A]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT Battery electrolytes  
 Safety  
 (electrolyte solns. containing organic compound additives for secondary lithium battery safety)  
 IT Secondary batteries  
 (lithium; electrolyte solns. containing organic compound additives for secondary lithium battery safety)  
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 872-36-6, Vinylene carbonate 21324-40-3, Lithium hexafluorophosphate  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing organic compound additives for secondary lithium battery safety)  
 IT 76-22-2, Camphor 89-80-5, Menthone 98-06-6, tert-Butylbenzene 491-07-6, Isomenthone 827-52-1, Cyclohexylbenzene 1717-84-6 2049-95-8, tert-Pentylbenzene 4695-62-9, (+)-Fenchone 24903-95-5, Nopinone 444603-90-1  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (organic compound additives in electrolyte solns. for secondary lithium battery safety)  
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 872-36-6, Vinylene carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing organic compound additives for secondary lithium battery safety)  
 RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 105-58-8 HCAPLUS  
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



- RN 872-36-6 HCAPLUS  
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



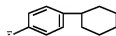
IT 98-06-6, tert-Butylbenzene 827-52-1,  
 Cyclohexylbenzene 1717-84-6 2049-95-8,  
 tert-Pentylbenzene  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (organic compound additives in electrolyte solns. for secondary lithium  
 battery safety)  
 RN 98-06-6 HCAPLUS  
 CN Benzene, (1,1-dimethylethyl)- (CA INDEX NAME)



RN 827-52-1 HCAPLUS  
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 1717-84-6 HCAPLUS  
 CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 2049-95-8 HCAPLUS  
 CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)

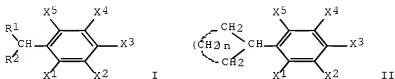


L153 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2010 ACS on STN  
 AN 2003:872543 HCAPLUS [Full-text](#)  
 DN 139:367536  
 TI Nonaqueous electrolyte lithium secondary battery  
 IN Sasaki, Yukio; Takehara, Masahiro; Ue, Makoto  
 PA Mitsubishi Chemical Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DT Patent



LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FI	JP 2003317803	A	20031107	JP 2003-41853	20030219
	JP 4337359	B2	20090930		
FR/JP	JP 2002-43703	A	20020220		
GI					



- AB The battery comprises an anode containing Si, Sn, Ge, Al, and carbon materials, a cathode containing LiCoO<sub>2</sub>, LiNiO<sub>2</sub>, and LiMnO<sub>2</sub>, and nonaq. electrolyte comprising C3-9 lactones, cyclic carbonates, linear carbonates, linear ethers, and linear carboxylates. The nonaq. electrolyte contains 5-100 mol% of Li salts (e.g. LiBF<sub>4</sub>, LiPF<sub>6</sub>), 0.1-10 weight% of F-containing compds. having formulas of (I) and (II), where X1-X5 are independent H or F, R1 and R2 are alkyl or cycloalkyl, and n is an integer of 2-10. The battery has high charging-discharging efficiency and high energy d., and is excellent in elec. capacity and safety in wide temperature range.
- IPCI H01M0010-36 [I,A]; H01M0004-58 [I,A]; H01M0004-38 [I,A]; C07C0025-13 [I,A]; C07C0025-00 [I,C\*]
- IPCR C07C0025-00 [I,C\*]; C07C0025-13 [I,A]; H01M0004-02 [I,C\*]; H01M0004-02 [I,A]; H01M0004-38 [I,C\*]; H01M0004-38 [I,A]; H01M0004-48 [I,C\*]; H01M0004-48 [I,A]; H01M0004-58 [I,C\*]; H01M0004-58 [I,A]; H01M0010-36 [I,C\*]; H01M0010-40 [I,A]; H01M0010-36 [I,A]
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- IT Battery electrolytes  
(Nonaq.; nonaq. electrolyte lithium secondary battery)
- IT Carboxylic acids, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(esters; nonaq. electrolyte lithium secondary battery)
- IT Secondary batteries  
(nonaq. electrolyte lithium secondary battery)
- IT Carbonates, uses  
Ethers, uses  
Lactones  
RL: NUU (Other use, unclassified); USES (Uses)  
(nonaq. electrolyte lithium secondary battery)
- IT 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 105-56-8, Diethyl carbonate 108-29-2,  $\gamma$ -Valerolactone 108-32-7, Propylene carbonate 616-36-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate 872-36-6, Vinylene carbonate 1717-82-4, 1-Cyclohexyl-2-fluorobenzene 1717-83-5, 1-Cyclohexyl-3-fluorobenzene 1717-84-6, 1-Cyclohexyl-4-fluorobenzene 4437-85-8, Butylene carbonate 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 7440-44-0, Carbon, uses 7440-56-4, Germanium, uses 12031-65-1, Lithium nickel oxide (LiNiO<sub>2</sub>) 12162-79-7,

Lithium manganese oxide (LiMnO<sub>2</sub>) 14283-07-9, Lithium tetrafluoro borate  
21324-40-3, Lithium hexafluoro phosphate 52627-24-4, Cobalt lithium  
oxide

RL: NUU (Other use, unclassified); USES (Uses)  
(nonaq. electrolyte lithium secondary battery)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl  
carbonate 108-32-7, Propylene carbonate 616-38-6,  
Dimethyl carbonate 623-53-0, Ethylmethyl carbonate  
872-36-6, Vinylene carbonate 1717-82-4,  
1-Cyclohexyl-2-fluorobenzene 1717-83-5,  
1-Cyclohexyl-3-fluorobenzene 1717-84-6,  
1-Cyclohexyl-4-fluorobenzene 4437-85-8, Butylene carbonate  
RL: NUU (Other use, unclassified); USES (Uses)  
(nonaq. electrolyte lithium secondary battery)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 616-38-6 HCAPLUS

CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 872-36-6 HCAPLUS  
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



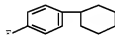
RN 1717-82-4 HCAPLUS  
 CN Benzene, 1-cyclohexyl-2-fluoro- (CA INDEX NAME)



RN 1717-83-5 HCAPLUS  
 CN Benzene, 1-cyclohexyl-3-fluoro- (CA INDEX NAME)



RN 1717-84-6 HCAPLUS  
 CN Benzene, 1-cyclohexyl-4-fluoro- (CA INDEX NAME)



RN 4437-85-8 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-ethyl- (CA INDEX NAME)



OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

=> fil reg  
 FILE 'REGISTRY' ENTERED AT 15:59:30 ON 23 JUN 2010  
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
 COPYRIGHT (C) 2010 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 22 JUN 2010 HIGHEST RN 1228216-77-0  
 DICTIONARY FILE UPDATES: 22 JUN 2010 HIGHEST RN 1228216-77-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d que 190

L88

STR



G1 9

VAR G1=3/7

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS UNLIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 9

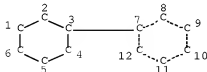
STEREO ATTRIBUTES: NONE

L90 915 SEA FILE=REGISTRY SUB=L79 SSS FUL L88

=> d que 1134

L127

STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS UNLIMITED

## GRAPH ATTRIBUTES:

RSPEC 7 3

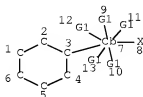
NUMBER OF NODES IS 12

## STEREO ATTRIBUTES: NONE

L129 SCR 1929

L131 106859 SEA FILE=REGISTRY SSS FUL L127 AND L129

L132 STR



VAR G1=H/X

## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS MCY UNS AT 7

DEFAULT ECLEVEL IS UNLIMITED

## GRAPH ATTRIBUTES:

RSPEC 3

NUMBER OF NODES IS 13

## STEREO ATTRIBUTES: NONE

L134 44 SEA FILE=REGISTRY SUB=L131 CSS FUL L132

=&gt; d his

(FILE 'HOME' ENTERED AT 14:28:15 ON 23 JUN 2010)

FILE 'HCAPLUS' ENTERED AT 14:28:29 ON 23 JUN 2010

L1 1 S US20070082271/PN OR (US2006-579249 OR WO2004-JP16749 OR JP200  
 E UBE/CO  
 L2 10641 S E41-E72/CO,PA,CS  
 E E66+ALL  
 L3 11617 S E2+RT OR E2-E33/PA,CS  
 L4 20438 S UBE?/CO,PA,CS  
 E ABE/AU  
 L5 4 S E3  
 E ABE K/AU  
 L6 1875 S E3-E6  
 E ABE KO/AU  
 L7 764 S E3,E4,E20  
 E KO/AU  
 L8 2 S E3  
 E KO J/AU  
 L9 66 S E3,E4  
 E KO JI/AU  
 E KOJI/AU  
 L10 3 S E3,E4  
 E HATTORI/AU  
 L11 1 S E3

L12           E HATTORI T/AU  
 1028       S E3, E4, E37  
           E TAKASHI/AU  
 L13           25 S E3  
           E TAKASHI H/AU  
 L14           3 S E3  
           E MATSUMORI/AU  
           E MATSUMORI Y/AU  
 L15           45 S E3, E7  
           E YASUO/AU  
 L16           1 S E3  
           E YASUO M/AU  
 L17           4 S E3  
 L18           1 S L1 AND L2-L17  
           SEL RN

FILE 'REGISTRY' ENTERED AT 14:34:28 ON 23 JUN 2010

L19           13 S E1-E13  
 L20           2 S L19 AND OCOC2/ES  
 L21           3 S 37830-90-3 OR 108-32-7 OR 4437-85-8  
           E VINYLETHYLENE CARBONATE/CN  
 L22           1 S E3  
 L23           6 S L20-L22  
 L24           3 S 105-58-8 OR 623-53-0 OR 616-38-6  
 L25           3 S 1717-82-4 OR 1717-83-5 OR 1717-84-6  
 L26           6 S 827-52-1 OR 98-06-6 OR 2049-95-8 OR 1014-60-4 OR 1625-92-9 OR  
           E ISOPROPYL BENZENE/CN  
           E ISOPROPYLBENZENE/CN  
 L27           1 S E3  
           E TERT-AMYL BENZENE/CN  
 L28           1 S E3  
           E TERT-AMYL BIPHENYL/CN  
           E TERT-BUTYL BIPHENYL/CN  
           E TERT-BUTYL-BIPHENYL/CN  
           E TERT-BUTYL BIPHENYL/CN  
           E BIS(TERT-BUTYLBENZENE)/CN  
 L29           133 S C22H300/MF AND 2 46.150.18/RID  
 L30           5 S L29 AND OXYBIS  
 L31           1 S L30 AND 374068-09-4  
           E "4, 4'-DI-TERT-PENTYLBENZENE"/CN  
           E "4, 4'-DI-TERT-AMYL BENZENE"/CN  
           E "4, 4'-DI-TERT-AMYL BENZENE"/CN  
           E "4, 4'-DI-TERT-AMYL-BENZENE"/CN  
           E DI-TERT-AMYL-BENZENE/CN  
           E DI-TERT-AMYL BENZENE/CN  
           E DI-TERT-PENTYLBENZENE/CN  
           E DI-TERT-PENTYL-BENZENE/CN  
           E DI-TERT-AMYL-BENZENE/CN  
           E TERT-PENTYLBIPHENYL/CN  
 L32           8 S L26, L27, L28, L31  
           E TERT-AMYL BIPHENYL/CN  
           E TERT-PENTYLBIPHENYL/CN  
 L33           214 S C17H20/MF AND 2 46.150.18/RID  
 L34           1 S L33 AND AMYL  
 L35           9 S L33 AND PENTYL  
 L36           1 S L35 AND 94995-64-9  
 L37           7 S L32 NOT C22H300/MF  
 L38           49 S L29 AND BIS  
 L39           1 S L38 AND "ETHER, BIS(P-TERT-PENTYLPHENYL)"/CN  
 L40           8 S L37, L39

L41 9 S L40,L36  
 L42 23106 S (16.326.4 OR 16.326.1)/RID AND 1/NC AND 1/NR AND O>=3  
 L43 1087 S L42 AND 2 ONE  
 L44 394 S L43 AND 3/ELC.SUB AND 3/O  
 L45 270 S L44 AND 1 3 DIOXOLAN 2 ONE  
 L46 31 S L44 AND 1 3 DIOXOL 2 ONE  
 L47 301 S L45,L46  
 L48 93 S L44 NOT L47  
 L49 301 S L23,L47  
 L50 849 S L43 AND 1 3 DIOXOLAN 2 ONE  
 L51 87 S L43 AND 1 3 DIOXOL 2 ONE  
 L52 634 S L50,L51 NOT L49

FILE 'HCAPLUS' ENTERED AT 15:12:14 ON 23 JUN 2010

L53 23143 S L49  
 L54 2078 S L52  
 L55 24215 S L53,L54

FILE 'REGISTRY' ENTERED AT 15:12:35 ON 23 JUN 2010

L56 STR  
 L57 50 S L56

FILE 'HCAPLUS' ENTERED AT 15:13:28 ON 23 JUN 2010

L58 8798 S L55 AND PY<=2006 NOT P/DT  
 L59 10899 S L55 AND (PD<=20060512 OR PRD<=20060512 OR AD<=20060512) NOT L  
 L60 233 S L1-L18 AND L55  
 L61 19721 S L58-L60  
 L62 5332 S L61 AND H01M/IPC,IC,ICM,ICS,EPC  
 L63 7842 S L61 AND BATTERY  
 E BATTERY/CT  
 L64 72948 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7+OLD,NT  
 E E8+ALL  
 L65 12930 S E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT  
 E BATTERIES/CT  
 E E3+ALL  
 L66 176941 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT  
 E BATTERY/CT  
 E E7+ALL  
 L67 50517 S E4  
 E E6+ALL  
 L68 6307 S E9  
 E E16+ALL  
 L69 27498 S E8  
 L70 8353 S L61 AND L64-L69  
 L71 8705 S L62,L63,L70  
 L72 8705 S L71 OR L71  
 L73 4300 S L72 RAN=(2002:403824,)  
 L74 4405 S L72 RAN=(,2002:402042)

FILE 'REGISTRY' ENTERED AT 15:18:42 ON 23 JUN 2010

L75 FILE 'HCAPLUS' ENTERED AT 15:18:42 ON 23 JUN 2010  
 TRA L73 1- RN : 12057 TERMS

L76 FILE 'REGISTRY' ENTERED AT 15:19:57 ON 23 JUN 2010  
 12057 SEA L75

L77 FILE 'HCAPLUS' ENTERED AT 15:26:28 ON 23 JUN 2010  
 TRA L74 1- RN : 9259 TERMS

FILE 'REGISTRY' ENTERED AT 15:27:44 ON 23 JUN 2010  
 L78 9259 SEA L77  
 L79 18544 S L76,L78

FILE 'HCAPLUS' ENTERED AT 15:30:37 ON 23 JUN 2010  
 L80 11016 S L61 NOT L71  
 L81 11016 S L80 OR L80  
 L82 5500 S L81 RAN=(1995:715706,)  
 L83 5516 S L81 RAN=(,1995:713869)

FILE 'REGISTRY' ENTERED AT 15:31:44 ON 23 JUN 2010

FILE 'HCAPLUS' ENTERED AT 15:31:44 ON 23 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:32:28 ON 23 JUN 2010  
 L84 TRA L82 1- RN : 50512 TERMS

FILE 'REGISTRY, REGISTRY' ENTERED AT 15:32:28 ON 23 JUN 2010  
 L85 50512 SEA L84  
 L86 STR L56  
 L87 0 S L86 SAM SUB=L79  
 L88 STR L86  
 L89 39 S L88 SAM SUB=L79  
 L90 915 S L88 FUL SUB=L79  
 L91 STR L88  
 L92 STR L88  
 L93 14 S L92 SAM SUB=L90  
 L94 406 S L92 FUL SUB=L90  
 SAV TEMP L94 LAURA579A/A  
 L95 294 S L94 NOT L52  
 L96 194 S L95 AND 1/NC  
 L97 189 S L96 NOT CCS/CI

FILE 'HCAPLUS' ENTERED AT 15:42:16 ON 23 JUN 2010  
 L98 24402 S L97  
 L99 8922 S L98 AND PY<=2006 NOT P/DT  
 L100 10824 S L98 AND (PD<=20060512 OR PRD<=20060512 OR AD<=20060512) NOT L  
 L101 19746 S L99,L100  
 L102 5271 S L101 AND H01M/IPC,IC,ICM,ICS,EPC  
 L103 7769 S L101 AND BATTERY  
 L104 8286 S L101 AND L64-L69  
 L105 209 S L101 AND L1-L18  
 L106 8663 S L102-L105  
 L107 57 S L106 NOT L71  
 SEL RN

FILE 'REGISTRY' ENTERED AT 15:43:58 ON 23 JUN 2010  
 L108 481 S E1-E481  
 L109 53 S L108 AND L90  
 L110 25 S L109 AND L94  
 L111 1057 S L97,L110,L49,L52

FILE 'HCAPLUS' ENTERED AT 15:46:56 ON 23 JUN 2010  
 L112 25540 S L111  
 L113 9258 S L112 AND PY<=2006 NOT P/DT  
 L114 11356 S L112 AND (PD<=20060512 OR PRD<=20060512 OR AD<=20060512) NOT  
 L115 235 S L1-L18 AND L112  
 L116 20638 S L113-L115  
 L117 5345 S L116 AND H01M/IPC,IC,ICM,ICS,EPC  
 L118 7861 S L116 AND BATTERY



L119 8382 S L116 AND L64-L69  
 L120 8735 S L117-L119

FILE 'REGISTRY' ENTERED AT 15:48:13 ON 23 JUN 2010

L121 509 S L90 NOT L94  
 L122 414 S L121 NOT PMS/CI  
 L123 410 S L122 NOT CCS/CI  
 L124 410 S L24,L123

FILE 'HCAPLUS' ENTERED AT 15:49:10 ON 23 JUN 2010

L125 5037 S L124 AND L120  
 L126 9 S L25 AND L125

FILE 'REGISTRY' ENTERED AT 15:49:37 ON 23 JUN 2010

L127 STR  
 L128 50 S L127  
 L129 SCR 1929  
 L130 50 S L127 AND L129  
 L131 106859 S L127 AND L129 FUL  
 L132 STR L127  
 L133 0 S L132 CSS SAM SUB=L131  
 L134 44 S L132 CSS FUL SUB=L131  
 L135 35 S L134/COM  
 L136 20 S L135 NOT (IUM OR D/ELS OR NC>=2 OR 14C# OR F>=3)  
 L137 4 S L19 AND L131

FILE 'HCAPLUS' ENTERED AT 15:55:13 ON 23 JUN 2010

L138 9 S L136,L137 AND L125  
 L139 9 S L126,L138  
 L140 5 S L139 AND L41  
 SEL RN L139

FILE 'REGISTRY' ENTERED AT 15:55:42 ON 23 JUN 2010

L141 108 S E482-E589  
 L142 12 S L141 AND 46.150.18/RID AND 1/NR  
 L143 10 S L142 NOT L41

FILE 'HCAPLUS' ENTERED AT 15:56:53 ON 23 JUN 2010

L144 9 S L139,L140

FILE 'REGISTRY' ENTERED AT 15:57:13 ON 23 JUN 2010

L145 3 S 872-36-6 OR 37830-90-3 OR 4427-96-7  
 L146 3 S 96-49-1 OR 108-32-7 OR 4437-85-8  
 L147 3 S 105-58-8 OR 623-53-0 OR 616-38-6

FILE 'HCAPLUS' ENTERED AT 15:57:57 ON 23 JUN 2010

L148 920 S L145 AND L146 AND L147  
 L149 55 S L148 AND PY<=2006 NOT P/DT  
 L150 535 S L148 AND (PD<=20060512 OR PRD<=20060512 OR AD<=20060512) NOT  
 L151 590 S L149,L150  
 L152 9 S L151 AND L25,L136,L137  
 L153 9 S L152,L144

=>